

1           BLOCK CODING FOR MULTILEVEL DATA COMMUNICATION

2                           ABSTRACT

3   Methods, apparatus and systems for multilevel data communication comprises dividing a  
4   set of information bits to be transmitted into a first group and a second group; encoding  
5   the first group to generate a block code, selecting a subset of symbols in a constellation of  
6   symbols in dependence on the block code according to a Gray-coded mapping function,  
7   selecting a symbol within the subset in dependence on the second group according to a  
8   Gray-coded mapping function, and transmitting the selected symbol.